

ELECTRIC CONNECTOR

BACKGROUND OF THE INVENTION

1. Field of the Invention:

The present invention relates to an electric connector for use in a computer network and, more particularly to such an electric connector, which uses finger means to detachably secure the back cover to the housing, holding down the terminals positively in position inside the housing.

2. Description of the Related Art:

Following fast development of computer technology, a variety of sophisticated connectors for use in a computer network has been disclosed. Frequently plug and pull action between matched connectors may cause a distortion of the terminals, resulting in an interruption or inaccuracy of signal transmission. Therefore, when designing an electric connector, the following factors must be well considered.

(1) How to lower the cost and reduce the number of component parts.

(2) How to have the component parts to be conveniently installed.

(3) How to make the assembly detachable.

FIG. 7 is an exploded view of an electric connector according to the prior art. According to this design, the electric

connector comprises an electrically insulative housing **A**, the housing **A** having two backwardly extended retaining arms **A1**, a terminal holder **B** mounted in the housing **A**, a back cover **C** fastened to the rear side of the housing **A**, and a metal shield **D** covering the housing **A** and the back cover **C**. The terminal holder **B** comprises a first holder block **B1** holding a set of contact terminals **B11**, and a second holder block **B2** holding a set of mounting terminals **B21**. The back cover **C** is soldered to the contact terminals **B11** and the mounting terminals **B21**. This design of electric connector is complicated, resulting in a high manufacturing cost and complicated in installation procedures. Because signal is transmitted from the contact terminals **B11** to the circuit board in which the mounting terminals **B21** are installed via the back cover **C**, the signal in transmission tends to be interfered with external noises, thereby causing an instability or interruption of signal transmission. Further, the connection between the contact terminals **B11** and the mounting terminals **B21** tend to be broken.

Therefore, it is desirable to provide an electric connector that eliminates the aforesaid drawbacks.

SUMMARY OF THE INVENTION

The present invention has been accomplished under the circumstances in view.

It is the main object of the present invention to provide an electric connector, which is simple and inexpensive to manufacture.

It is another object of the present invention to provide an
5 electric connector, which is detachable.

To achieve these objects of the present invention, the electric connector comprises an electrically insulative housing, comprising a front receiving side, a recessed rear mounting side, and a plurality of insertion holes extended from the front receiving
10 side to the rear mounting side, a plurality of terminals respectively mounted in the recessed rear mounting side of the housing, the terminals each comprising a horizontally extended mounting portion positioned inside the housing, a front contact portion curved obliquely backwards from a front end of the mounting
15 portion and a soldering portion downwardly extended from a rear end of the mounting portion, the passageways in between the spacer blocks to the outside of the housing for soldering to a circuit board; and a back cover press-fitted into the recessed rear mounting side of the housing to hold the terminals, and the back
20 cover comprising at least one flat pressure wall adapted to hold down the soldering portions of the terminals in the recessed rear mounting side of the housing.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an exploded view of an electric connector according to the present invention.

FIG. 2 is an oblique front elevation in an enlarged scale of the housing for the electric connector shown in FIG. 1.

FIG. 3 is an exploded side view in section of the electric connector according to the present invention.

FIG. 4 is an exploded top view in section of the electric connector according to the present invention.

FIG. 5 is a sectional side view of the present invention showing the electric connector assembled.

FIG. 6 is a top view in section of the present invention showing the electric connector assembled.

FIG. 7 is an exploded view of an electric connector according to the prior art.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to FIGS. 1~4, an electric connector in accordance with the present invention is shown comprised of an electrically insulative housing 1, a plurality of terminals 2 mounted in the housing 1, and a back cover 3 fastened to the back side of the housing 1 to hold down the terminals 2.

The housing 1 has a front receiving side 11, a recessed rear mounting side 12, a plurality of insertion holes 121 extended from

the front receiving side 11 to the rear mounting side 12, a plurality of hook holes 122 formed in the rear mounting side 12, a finger unit 13 backwardly extended from the rear mounting side 12, a plurality of protruding blocks 14 suspended in the rear mounting side 12, and a plurality of passageways 141 respectively defined in between each two adjacent protruding blocks 14. The finger unit 13 comprises a plurality of spacer blocks 131, and a plurality of passageways 1312 respectively defined in between each two adjacent spacer blocks 131. Each spacer block 131 has a front locating groove 1311.

The terminals 2 each comprise a horizontally extended mounting portion 21, a front contact portion 22 curved obliquely backwards from the front end of the mounting portion 21, a rear vertical soldering portion 23 curved downwards from the rear end of the mounting portion 21 and terminating in a material bar 24. According to this embodiment, the terminals 2 are arranged into two sets each set having a material bar 24 connected to the rear vertical soldering portions 23 of the respective terminals 2.

The back cover 3 comprises two flat pressure walls 31 in the front side, a plurality of hooks 33 forwardly extended from the front side corresponding to the hook holes 122 in the housing 1, a finger unit 32 formed in the front side below one of the flat pressure walls 31 and a plurality of vertical partition flanges 34

formed in the front side below the other of the flat pressure walls 31. The finger unit 32 comprises a plurality of receiving open chambers 321 and partition flanges 322 alternatively arranged below the flat pressure walls 31.

5 Referring to FIGS. 5 and 6, the terminals 2 are mounted in the rear mounting side 12 of the housing 1 to force the mounting portions 21 into the insertion holes 121 of the housing 1 respectively, keeping the front contact portions 22 of the terminals 2 respectively suspended in the front receiving side 11 of the
10 housing 1 and the rear vertical soldering portions 23 of the respective terminals 2 respectively positioned in the passageways 1312 in between the spacer blocks 131 and the front locating grooves 1311 of the spacer block 131 and the passageways 141 in between the protruding blocks 14, and then the back cover 3 is
15 press-fitted into the rear mounting side 12 to engage the hooks 33 into the respective hook holes 122 in the housing 1, keeping the spacer blocks 131 of the finger unit 13 of the housing 1 respectively engaged into the receiving open chambers 321 of the finger unit 32 of the back cover 3 and the partition flanges 322 of
20 the back cover 3 respectively engaged into the passageways 1312 in between the spacer blocks 131 of the finger unit 13 of the housing 1 and the passageways 141 in between the protruding blocks 14.

At this time, the flat pressure walls 31 of the back cover 3 hold down the rear vertical soldering portions 23 of the terminals 2 in the passageways 1312 and the front locating grooves 1311 firmly. After installation of the back cover 3, the material bars 24 are separated from the rear vertical soldering portions 23 of the terminals 2, for enabling the rear vertical soldering portions 23 of the terminals 2 to be respectively soldered to a circuit board (not shown).

The aforesaid design can be employed to any of a variety of network connectors (for example RJ-45 and RJ-11). The aforesaid preferred embodiment is a combination of RJ-45 and RJ-11. Alternatively, the connector of the present invention can be made in the form of a RJ-45 connector or RJ-11 connector independently. The main feature of the present invention is the design of the flat pressure walls 31 and finger unit 32 of the back cover 3 adapted to hold down the terminals 2 firmly in the rear mounting side 12 of the housing 1.

A prototype of electric connector has been constructed with the features of FIGS. 1~6. The electric connector functions smoothly to provide all of the features discussed earlier.

Although a particular embodiment of the invention has been described in detail for purposes of illustration, various modifications and enhancements may be made without departing

from the spirit and scope of the invention. Accordingly, the invention is not to be limited except as by the appended claims.